

IN THE CLAIMS

1. (Currently Amended) A method of diagnosing a lubricated portion comprising the steps of:

filtrating a lubricating oil picked up from the lubricated portion so as to separate a ~~large-diameter~~ metal particle larger than a predetermined size;

thereafter measuring a metal concentration of a solution formed by dissolving said ~~large-diameter~~ separated metal particle by an acid in accordance with an emission spectrometry and measuring a metal concentration of a filtrate in accordance with the emission spectrometry; and

diagnosing a state of said lubricated portion on the basis of the respective metal concentrations of said solution and said filtrate.

2. (Currently Amended) A method of diagnosing a lubricated portion as claimed in claim 1, wherein the state of said lubricated portion is diagnosed by determining ~~[[an]]~~ a wear depth in said lubricated portion from a total value of the respective metal concentrations of said solution and said filtrate, and on the basis of a rate of change of said wear depth in accordance with a time elapse.

3. (Original) A method of diagnosing a lubricated portion as claimed in claim 1, wherein said lubricating oil is filtrated by a filter having a hole diameter between 0.01 and 10.00 μm .

4. (Original) A method of diagnosing a lubricated portion as claimed in claim 1, wherein said emission spectrometry is constituted by an analyzing method using an inductively coupled plasma.

5. (Currently Amended) A system of diagnosing a lubricated portion comprising:

[[a]] filtrating means for filtrating a lubricating oil picked up from the lubricated portion so as to separate a ~~large-diameter~~ metal particle larger than a predetermined size;

[[an]] emission spectrometry means for measuring respective metal concentrations of (1) a solution formed by dissolving said ~~large-diameter~~ separated metal particle by an acid and (2) a filtrate;

[[a]] diagnosing means for diagnosing a state of said lubricated portion on the basis of the respective metal concentrations of said solution and said filtrate; and

[[a]] display means for displaying a result of diagnosis of said diagnosing means.

6. (Currently Amended) A system of diagnosing a lubricated portion as claimed in claim 5, wherein the system of diagnosing the lubricated portion is provided with [[an]] wear depth calculating means for determining [[an]] a wear depth in said lubricated portion from a total value of the respective metal concentrations of said solution and said filtrate, [[a]] memory means for storing the result of calculation by said wear depth calculating means, and [[a]] change rate calculating means for determining a rate of change of said wear depth in accordance with a time elapse from the result of calculation by said wear depth calculating means and the result of storage by said memory means, and said diagnosing means ~~diagnosis~~ diagnoses the state of said lubricated portion on the basis of the result of calculation of said change rate calculating means.

7. (Original) A system of diagnosing a lubricated portion as claimed in claim 5, wherein said filtrating means includes a filter having a hole diameter between 0.01 and 10.00 μm .

8. (Original) A system of diagnosing a lubricated portion as claimed in claim 5, wherein said emission spectrometry means is an emission spectrometry apparatus using an inductively coupled plasma.

9 (New): A method of diagnosing a lubricated portion comprising the steps of:
filtrating a lubricating oil picked up from the lubricated portion so as to separate a metal particle larger than a predetermined size;

measuring a metal concentration of a solution formed by dissolving said separated metal particle by an acid, in accordance with an emission spectrometry and measuring a metal concentration of a filtrate in accordance with the emission spectrometry; and

diagnosing a state of said lubricated portion on the basis of the respective metal concentrations of said solution and said filtrate, wherein

the state of said lubricated portion is diagnosed by determining a wear depth in said lubricated portion from a total value of the respective metal concentrations of said solution and said filtrate, and on the basis of a rate of change of said wear depth in accordance with a time elapse, and

the timing before the wear depth reaches the predetermined surface roughness of the lubricated portion is forecast on the basis of the rate of change.

10 (New): A system of diagnosing a lubricated portion comprising:
means for filtrating a lubricating oil picked up from the lubricated portion so as to separate a metal particle larger than a predetermined size;

means for measuring respective metal concentrations of (1) a solution formed by dissolving said separated metal particle by an acid and (2) a filtrate;

means for determining a wear depth in said lubricated portion from a total value of the respective metal concentrations of said solution and said filtrate;

means for storing the result of calculation by said wear depth calculating means:

means for determining a rate of change of said wear depth in accordance with a time elapse from the result of calculation by said wear depth calculating means and the result of storage by said means for storing;

means for diagnosing a state of said lubricated portion on the basis of the reactive metal concentrations of said solution and said filtrate;

means for displaying a result of diagnosis of said diagnosing means, wherein

said diagnosing means diagnosis the state of said lubricated portion on the basis of the result of calculation of said change rate calculating means, and

the timing before the wear depth reaches the predetermined surface roughness of the lubricated portion is forecast on the basis of the rate of the change.